

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (CURRENTLY AMENDED) An apparatus to prepare a biocompatible matrix from a matrix-forming fluid comprising

a chamber to contain a matrix-forming fluid, said chamber defined by at least a top planar surface of a heat conductive material and a bottom planar surface of a heat conductive material, said top and bottom surfaces effective to symmetrically remove heat from said top surface and said bottom surface of said matrix-forming fluid in preparation of the biocompatible matrix,

at least one discontinuous gasket having a uniform thickness positioned between said top and bottom surfaces to define a perimeter of said chamber, said gasket capable of containing said matrix-forming fluid within said perimeter, and

a plurality of fasteners to fasten said apparatus.

2. (ORIGINAL) The apparatus of claim 1 further comprising a container sized to contain a coolant fluid for immersion of said apparatus in said coolant fluid.

3. (ORIGINAL) The apparatus of claim 2 wherein said container is open.

4. (ORIGINAL) The apparatus of claim 1 wherein said chamber is a bladder.

5. (ORIGINAL) The apparatus of claim 1 wherein said heat conductive material is a metal.

6-32. (WITHDRAWN)

33. (PREVIOUSLY PRESENTED) An apparatus for casting a biologically compatible matrix, said apparatus comprising a metal chamber forming an open chamber with five joined surfaces and a separate sixth surface attachable to said open chamber to form a closed chamber containing a matrix-forming fluid for a biologically compatible matrix,

spacers to space the first and second surfaces and thereby regulate a thickness of a matrix resulting from freezing of the matrix-forming fluid, and

fasteners to effect a liquid-tight seal among at least the five joined surfaces.

34-39. (WITHDRAWN)

40. (CURRENTLY AMENDED) An apparatus for controlled rate freezing of a matrix-forming fluid comprising a closed chamber defined by at least a top and bottom surface of a heat conductive material and a discontinuous gasket, said chamber containing said fluid, said heat conductive material symmetrically removing heat for controlled rate freezing of a matrix-forming fluid.

41. (ORIGINAL) The apparatus of claim 40 wherein the chamber is a bladder.

42. (CURRENTLY AMENDED) The apparatus of claim 40 wherein the chamber further comprises at least one gasket is of substantially uniform thickness separating said top and bottom surfaces.

43. (NEW) An apparatus to prepare a biocompatible matrix made by containing a matrix forming fluid within a chamber having a perimeter defined by a gasket, a top surface of a thermal conductive material in contact with the fluid, and a bottom surface of a thermal conductive material in contact with the fluid, cooling the fluid under conditions to produce a matrix having substantially symmetric reticulations and uniform thickness, dehydrating the matrix, and physically crosslinking the matrix, for use to prepare a biocompatible matrix capable of supporting cells inoculated thereon.

44. (NEW) The apparatus of claim 43 for use to prepare a lamination layer of cultured dermal cells for a layer of cultured epidermal cells applied thereon.

45. (NEW) An apparatus to prepare a biocompatible matrix made by providing a collagen containing matrix forming fluid within a chamber having a perimeter defined by a gasket, a top surface of a thermal conductive material in contact with the fluid, and a bottom surface of a thermal conductive material in contact with the fluid,

freezing the fluid under conditions to produce a solid uncrosslinked sheet having substantially symmetric reticulations and uniform thickness,
dehydrating the solid sheet to form a matrix, and
physically crosslinking the matrix,
for use to prepare a biocompatible matrix capable of supporting a lamination layer of cultured dermal cells for a layer of cultured epidermal cells applied thereon.

46. (NEW) An apparatus to prepare a biocompatible matrix having substantially symmetric reticulations made by

containing a matrix forming fluid within a chamber having a perimeter defined by a gasket, a top surface of a thermal conductive material in contact with the fluid, and a bottom surface of a thermal conductive material in contact with the fluid, and having a substantially uniform thickness,

cooling the fluid at a controlled rate to simultaneously remove heat from the top and bottom surfaces to produce a solid sheet matrix having substantially symmetric reticulations and uniform thickness,

dehydrating the solid sheet to form a matrix, and
physically crosslinking the matrix,

for use to prepare a biocompatible matrix capable of supporting cells inoculated thereon.